



**10-13-P]**

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2012-0758; Directorate Identifier 2012-CE-027-AD; Amendment 39-17129; AD 2012-14-15]**

**RIN 2120-AA64**

**Airworthiness Directives; Honeywell International, Inc. Global Navigation Satellite Sensor Units**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule; request for comments.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for certain aircraft equipped with Honeywell International, Inc. Model KGS200 Mercury<sup>2</sup> wide area augmentation system (WAAS) global navigation satellite sensor units (GNSSU). This AD requires you cease all localizer performance (LP), localizer performance with vertical guidance (LPV), and satellite based augmentation system (SBAS) lateral navigation/vertical navigation (LNAV/VNAV) approaches until a software problem is corrected. This AD was prompted by a report and follow-up investigation of a software problem that occurred during flight test trials of SBAS-capable aircraft using a similar Honeywell global positioning system (GPS) sensor and the same software as the Model KGS200 Mercury<sup>2</sup> GNSSU. A software problem occurred that could result in misleading information during LP, LPV, or SBAS LNAV/VNAV approaches. We are issuing this AD to correct the unsafe condition on these products.

**DATES:** This AD is effective [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER].

We must receive comments on this AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.
- Hand Delivery: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

#### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

#### **FOR FURTHER INFORMATION CONTACT:**

- Non-Pilatus aircraft-related: Albert Ma, Aerospace Engineer, Wichita Aircraft Certification Office, FAA, 1801 S. Airport Road, Room 100, Wichita, Kansas 67209; phone: (316) 946-4151; fax: (316) 946-4107; email: [albert.ma@faa.gov](mailto:albert.ma@faa.gov).
- Pilatus aircraft-related: Doug Rudolph, Aerospace Engineer, FAA, Small Airplane Directorate, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329-4059; fax: (816) 329-4090; email: [doug.rudolph@faa.gov](mailto:doug.rudolph@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We received a report that during flight test trials of SBAS-capable aircraft using a similar Honeywell GPS sensor with the same software as the Honeywell International, Inc. Model KGS200 Mercury<sup>2</sup> WAAS GNSSU, a software problem occurred that could result in misleading information during LP, LPV, or SBAS LNAV/VNAV approaches.

Investigation found the GPS receiver could compute an incorrect ionospheric correction and error estimate such that the error estimate no longer bounds the error and the downstream monitor cannot detect it. This can potentially lead to hazardously misleading information.

The software problem is due to a mathematical rounding error, which results in misleading information.

At this time, the only type-certificated airplanes that the product is installed in is Pilatus PC-12/47E airplanes.

This condition, if not corrected, could result in misleading information during instrument meteorological conditions, which could prevent the aircraft from performing safe instrument approach procedures, causing controlled flight into terrain.

### **FAA's Determination**

We are issuing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

### **AD Requirements**

This AD requires incorporating airworthiness limitations and placards that prohibit LP, LPV, and SBAS LNAV/VNAV approaches until the software problem is corrected.

**Interim Action**

We consider this AD interim action. If and when new software is developed, the FAA will evaluate this software and may take further rulemaking action.

**FAA's Justification and Determination of the Effective Date**

An unsafe condition exists that requires the immediate adoption of this AD. The FAA has found that the risk to the flying public justifies waiving notice and comment prior to adoption of this rule because this condition, if not corrected, could result in misleading information during instrument meteorological conditions, which could prevent the aircraft from performing safe instrument approach procedures, causing controlled flight into terrain. Therefore, we find that notice and opportunity for prior public comment are impracticable and that good cause exists for making this amendment effective in less than 30 days.

**Comments Invited**

This AD is a final rule that involves requirements affecting flight safety and was not preceded by notice and an opportunity for public comment. However, we invite you to send any written data, views, or arguments about this AD. Send your comments to an address listed under the ADDRESSES section. Include the docket number FAA-2012-17129 and Directorate Identifier 2012-CE-027-AD at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this AD. We will consider all comments received by the closing date and may amend this AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this AD.

## Costs of Compliance

We estimate that this AD affects 195 GNSSU installed on, but not limited to, PILATUS AIRCRAFT LTD. Model PILATUS PC-12/47E airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

### Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Incorporate language into the limitations section of the flight manual and manufacture and install a placard	0.5 work-hour X \$85 per hour = \$42.50	\$5	\$47.50	\$9,263

## Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. "Subtitle VII: Aviation Programs" describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

## **Regulatory Findings**

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

## **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

## **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

### **PART 39 - AIRWORTHINESS DIRECTIVES**

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

- 2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

**2012-14-15 Honeywell International, Inc.:** Amendment 39-17129; Docket No. FAA-2012-0758; Directorate Identifier 2012-CE-027-AD.

**(a) Effective Date**

This AD is effective [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(b) Affected ADs**

None.

**(c) Applicability**

(1) This AD applies to all Honeywell International, Inc. Model KGS200 Mercury<sup>2</sup> wide area augmentation system (WAAS) global navigation satellite sensor units (GNSSU), Honeywell part numbers (P/N) 066-01201-0102 and 066-01201-0104.

(2) This product is installed on, but not limited to, PILATUS AIRCRAFT LTD. Model PILATUS PC-12/47E airplanes, certificated in any category.

**(d) Subject**

Joint Aircraft System Component (JASC)/Air Transport Association (ATA) of America Code 3457, Navigation.

**(e) Unsafe Condition**

This AD was prompted by a report and follow-up investigation of a software problem that occurred during flight test trials of satellite based augmentation system (SBAS)-capable aircraft using a similar Honeywell global positioning system (GPS) sensor and the same software as the Model KGS200 Mercury<sup>2</sup> GNSSU. A software problem occurred that could result in misleading information during localizer performance (LP), localizer performance with vertical guidance (LPV), or SBAS lateral navigation/vertical navigation (LNAV/VNAV) approaches. We are issuing this AD to correct the unsafe condition on these products.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Incorporate Language into the Limitations Section of the Aircraft Flight Manual**

(1) Before further flight after [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the effective date of this AD), incorporate language into the limitations section of the aircraft flight manual (AFM) that states, "localizer performance (LP), localizer performance with vertical guidance (LPV), and satellite based augmentation system (SBAS) lateral navigation/vertical navigation (LNAV/VNAV) approach operations are prohibited." If it can be determined by a review of the AFM that the aircraft does not have LP capability and uses barometric vertical navigation (VNAV), then it is permissible to incorporate language into the limitation section of the AFM that states, "local performance with vertical guidance (LPV) approaches are prohibited."

(2) The AFM action required by this AD may be done by an owner/operator (pilot) holding at least a private pilot certificate and must be entered into the aircraft records showing compliance with this AD in accordance with 14 CFR §§ 43.9 (a)(1)(4) and 14 CFR 91.417(a)(2)(v). The record must be maintained as required by 14 CFR §§ 91.173, 121.380, or 135.439.

**(h) Fabricate and Install a Placard**

(1) Within 3 days after [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the effective date of this AD), fabricate and install a placard that states, "LP, LPV, and SBAS LNAV/VNAV approaches are prohibited." If it can be determined by a review of the AFM that the aircraft does not have LP capability and uses VNAV, then it is permissible to use a placard that states, "LPV approaches are prohibited."

(2) The placard shall be manufactured so that the font size is at least an 1/8" with black lettering on a white background. The placard must be fabricated and installed by a certificated aircraft mechanic on the instrument panel in clear view of the pilot.



**(i) Special Flight Permit**

Special flight permits are prohibited for this AD.

**(j) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Wichita Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in the Related Information section of this AD.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

**(k) Related Information**

For more information about this AD, contact:

(1) Non-Pilatus aircraft-related: Albert Ma, Aerospace Engineer, Wichita Aircraft Certification Office, FAA, 1801 S. Airport Road, Room 100, Wichita, Kansas 67209; phone: (316) 946-4151; fax: (316) 946-4107; email: [albert.ma@faa.gov](mailto:albert.ma@faa.gov); or

(2) Pilatus aircraft-related: Doug Rudolph, Aerospace Engineer, FAA, Small Airplane Directorate, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329-4059; fax: (816) 329-4090; email: [doug.rudolph@faa.gov](mailto:doug.rudolph@faa.gov).

**(l) Material Incorporated by Reference**

None.

Issued in Kansas City, Missouri, on July 13, 2012.

Earl Lawrence,  
Manager, Small Airplane Directorate,  
Aircraft Certification Service.

[FR Doc. 2012-17592 Filed 07/18/2012 at 8:45 am; Publication Date: 07/19/2012]